

Description of Map

01-00-00-00-Heading2—MiddlePleisto—Middle Pleistocene to Holocene—Middle Pleistocene to Holocene

01-01-01-00-00—unit—Qca—Colluvium and alluvium—Thin colluvial and alluvial deposits widely varied in texture, and occurring on mountain, valley, and piedmont slopes. Locally includes undifferentiated alluvium of arroyo valley floor equivalent to "Qvy" and "Qvo"

01-02-01-00-00—unit—Qvyf—Younger valley alluvium—Arroyo channel, terrace, and fan deposits; mainly sand to sandy loam commonly with pebble-to-boulder-gravel zones, and some loam to clay.

01-02-02-00-00—unit—Qvyf—Younger valley alluvium—Fluvial facies, Rio Grande flood-plain and channel deposits; clay to sand in upper part, grading to basal sand and gravel zone.

01-03-01-00-00—unit—Qvo—Older valley alluvium—Arroyo terrace and fan deposits; textural range like "Qvy"; with gravelly units dominant; locally cemented with lime, particularly in zones of soil carbonate accumulation 1 to 4 ft below surface of broader interfluvies.

01-03-02-00-00—unit—Qvof—Older valley alluvium—Fluvial facies (ancient river) deposits. Textures like "Qvyf" with carbonate-cemented sandstone and conglomerate zones.

01-03-03-00-00—unit—Qvov—Older valley alluvium—Complexly intertonguing arroyo fan (Qvo) and river (Qvof) deposits below elevations of about 4,200 feet.

02-00-00-00-Heading2—EarlyPleisto—Early to Middle Pleistocene—Early to Middle Pleistocene

02-01-01-00-00—unit—Qrc—Basal boulder to pebble conglomerate and conglomeratic sandstone deposits comprising an older piedmont-slope (alluvial-fan and pediment-veneer) facies.

02-01-02-00-00—unit—Qrcf—Intermediate sand, pebble to cobble gravel, sandstone, conglomeration, loam to clay, and minor volcanic ash lenses comprising tongues of ancient river deposits. "Qrcf" occurs between units "Qrc" and "Qrcp" below elevations of about 4,500 ft. (Approximate boundary between the concealed wedge-out of Qrcf marked by red-dotted contact.)

02-01-03-00-00—unit—Qrcp—Qrcp—Upper boulder to pebble gravel and sandy gravel deposits comprising a younger piedmont-slope facies; surficial layers commonly contain 2 to 4 ft-thick, calcrete cemented with pedogenic carbonates.

02-01-04-00-00—unit—Qrcu—Qrcu—Undifferentiated piedmont-slope deposits, generally equivalent to "Qrcp/Qrcr".

02-01-05-00-00—unit—Qcr—Qcr—Small bodies of mixed fluvial and piedmont-slope units.

03-00-00-00-Heading2—MioPlio—Miocene & Pliocene—Miocene & Pliocene

03-01-01-00-00—unit—Trvc—Trvc—Fanglomerate

03-01-02-00-00—unit—Trv—Trv—Basin-center facies comprising sandstone, mudstone, claystone, gypsiferous in part.

03-01-03-00-00—unit—Trvs—Trvs—Seden Basalt

04-00-00-00—unit—Ttu—Ttu—Tuffaceous sandstone and conglomerate. Equivalent to upper Thurman beds in the Rincon Hills.

05-00-00-00-Heading2—OligoMio—Oligocene & Miocene—Oligocene & Miocene

05-01-01-00-00—unit—Tu—Tu—Basaltic andesite

05-01-02-00-00—unit—Tuv—Tuv—Cinder and agglomerate

05-01-03-00-00—unit—Tuc—Tuc—Interbedded fanglomerate, gypsiferous sandstone and mudflow deposits.

06-00-00-00—unit—Tb7—Tb7—Welded vitric

06-01-01-00-00—unit—Tbsu—Upper sedimentary member—Tuffaceous sandstone and conglomerate. Interfingers with "Tuc" member of Uvas Basaltic Andesite.

06-01-01-03-01—unit—Tb6—Tb6—Vitric-crystal ash-flow

06-01-01-04-01—unit—Tb5m—Tb5m—Tuffaceous sandstone and conglomerate.

06-01-01-05-01—unit—Tb5—Tb5—Crystal-vitric ash-flow tuff containing abundant white pumice lumps near top.

06-01-01-06-01—unit—Tb4—Tb4—Welded vitric-crystal ash-flow tuff with devitrified, flattened pumice discs to 1 ft in diameter.

06-01-01-07-01—unit—Tba—Vesicular Andesite—Dark gray to brown vesicular andesite flows and dikes.

06-01-01-08-01—unit—Tb3—Tb3—Pumiceous, orange, vitric ash-flow tuff.

06-01-01-08-02—unit—Tbb—Tbb—Black olivine

06-01-01-08-03—unit—Tbsl—Tbsl—Tuffaceous sandstone, mudstone, and air-fall deposits.

06-01-01-09-01—unit—Tb2—Tb2—Welded vitric ash-flow

06-01-02-00-00—Heading4—CedarHills—Cedar Hills intrusive-extrusive rhyolite complex—Cedar Hills intrusive-extrusive rhyolite complex

06-01-02-01-01—unit—Tb1c—Tb1c—Flow-banded rhyolite—Spherulitic to platy flow-banded rhyolite.

06-01-02-02-01—unit—Tbt—Tbt—Younger air-fall deposits—Air-fall tuff and breccia, opalized locally, and fluvial tuffaceous sedimentary rocks.

06-01-02-02-02—unit—Tba—Tba—Younger air-fall deposits—Flow and dikes of vesicular andesite. Equivalent in part to "Tbs" of Sierra Kemado and Sierra de las Uvas.

06-01-02-03-01—unit—Tb3—Tb3—Intrusive pumiceous vitric ash-flow tuff, probably in form of dike.

06-01-02-04-01—unit—Tbt—Tbt—Older air-fall breccia—Opalized air-fall breccia. Equivalent to much of "Tbs" in Sierra de las Uvas.

07-00-00-00—unit—d—Basaltic dike—Basaltic dike.

07-02-01-00-00—unit—Tpp—Tpp—Andesitic sandstone, mudstone, breccia and conglomerate of fluvial, overbank, and mudflow origin.

08-00-00-00—unit—Pah—Pah—Interbedded red siltstone and gray to tan fossiliferous marine limestone.

Explanation of Map Symbols

ContactsAndFaults

RefNo_Desc

01.01.01 Contact—Identity and existence are certain. Location is accurate.

01.01.03 Contact—Identity and existence are certain. Location is approximate.

02.01.01 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence are certain. Location is accurate.

02.01.03 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence are certain. Location is approximate.

02.01.07 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence are certain. Location is concealed.

02.02.01 Normal fault—Identity and existence are certain. Location is accurate. Ball and bar on downthrown block.

02.02.03 Normal fault—Identity and existence are certain. Location is approximate. Ball and bar on downthrown block.

02.02.07 Normal fault—Identity and existence are certain. Location is concealed. Ball and bar on downthrown block.

02.08.01 Thrust fault (1st option)—Identity and existence are certain. Location is accurate. Sawtooth on upper (tectonically higher) plate.

19.01.23 Concealed sedimentary facies boundary—Showing approximate boundary between the concealed wedge-out of Qrcf.

31.08 Map neatline

REF_NO

5.9.1

OrientationPoints

RefNo_Desc

02.11.08 Inclined fault (1st option)—Showing dip value and direction.

06.02 Inclined bedding—Showing strike and dip.

06.04 Overturned bedding—Showing strike and dip.

06.40 Gently inclined (between 0° and 30°) bedding, as determined remotely or from aerial photographs—Showing approximate strike and direction of dip.

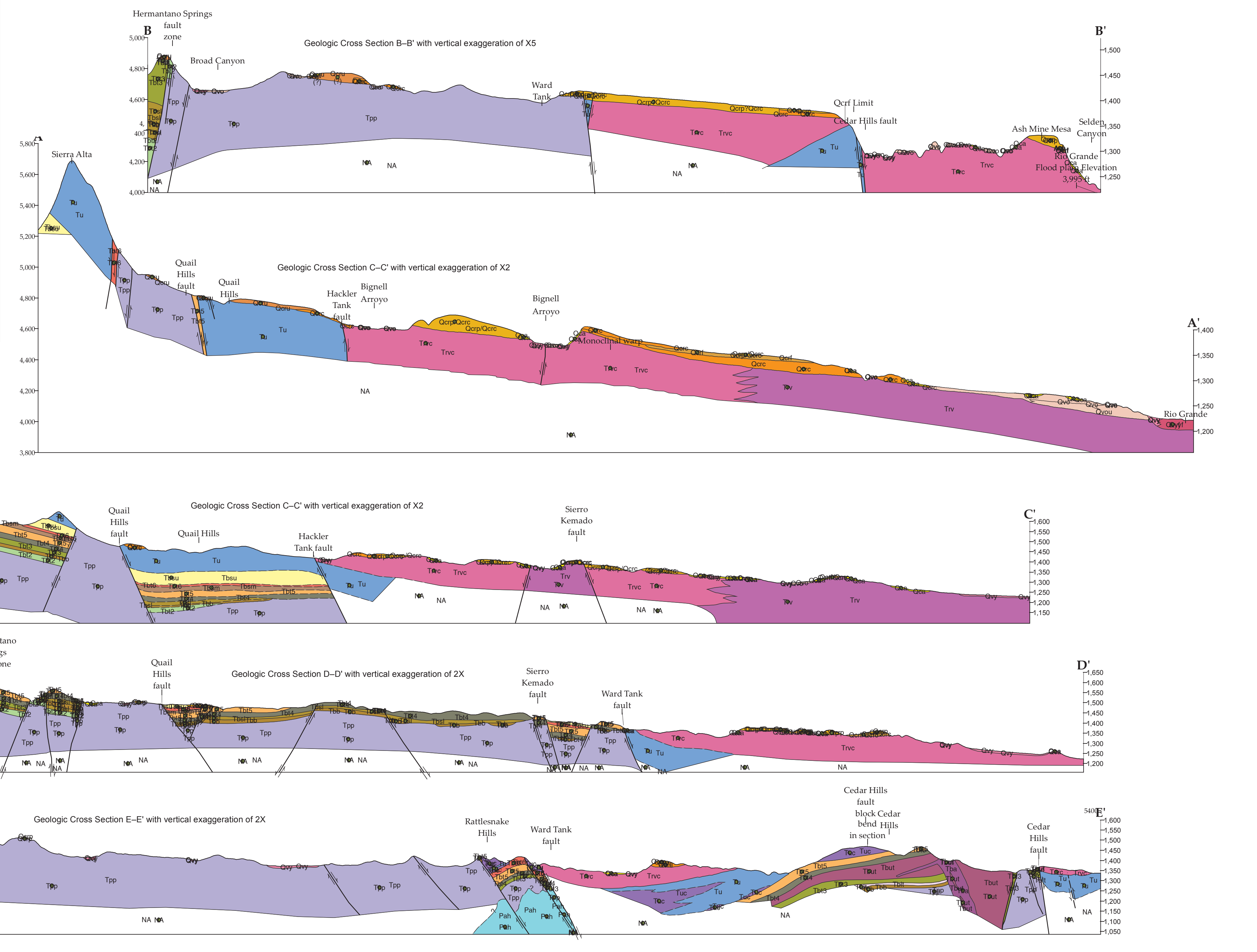
08.01.02 Inclined generic (origin not known or not specified) foliation—Showing strike and dip.

CartographicLines

Symbol

31.10

31.11



Base map from U.S. Geological Survey 2017
North American Datum of 1983 (NAD83)
Projection and 100-meter grid: Universal Transverse Mercator, Zone 13S, shown in blue
Coordinate System: North American Datum of 1983 (NAD83)
Units: U.S. Census Bureau, 2018-2019
Names: National Hydrography Dataset, 2014
Hydrography: 1:50,000 4 in Digital Terrain Model, 2014
Contours: FWS National Wetlands Inventory, 1977-2014

1:24,000

1 0.5 0 1 kilometer

1000 0 1000 2000 3000 4000 5000 6000 7000 feet

Contour Interval 20 Feet
National Geodetic Vertical Datum 1929

Mean Magnetic Declination 1975
11° East
At Map Center

Quadrangle Location

New Mexico Bureau of Geology and Mineral Resources
New Mexico Tech
801 Leroy Place
Socorro, New Mexico
87801-4796
(575) 835-5490

This and other STATEMAP quadrangles are available for free download in both PDF and ArcGIS formats at:
<http://geoinf.nmt.edu>

Geology of Sierra Alta Quadrangle, Doña Ana County, New Mexico

1975
by
William R Seager¹, Russell E. Clemons², and John W. Hawley²

¹Dept. of Earth Sciences, New Mexico State Univ., 1780 E. University Ave., Las Cruces, NM 88003
²Hawley Geomatrix, P.O. Box 4370, Albuquerque, NM 87116

This draft geologic map is preliminary and will undergo revision. It was produced from either scans of hand-drafted originals or from digitally drafted original maps and figures using a wide variety of software, and is currently in cartographic production. It is being distributed in this draft form as part of the bureau's Open-file map series (OFGM), due to high demand for current geologic map data in these areas where STATEMAP quadrangles are located, and it is the bureau's policy to disseminate geologic data to the public as soon as possible.

After this map has undergone review, editing, and final cartographic production adhering to bureau map standards, it will be released in our Geologic Map (GM) series. This final version will receive a new GM number and will supersede this preliminary open-file geologic map.

DRAFT Comments to Map Users

A geologic map displays information on the distribution, nature, orientation, and age relationships of rock and deposits and the occurrence of structural features. Geologic and fault contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic quadrangle map may be based on any of the following: reconnaissance field geologic mapping; compilation of published and unpublished work; and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologists. Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration. Topographic and cultural changes may not be shown due to recent development.

Cross sections are constructed based upon the interpretations of the author made from geologic mapping, and available geophysical, and subsurface (drillhole) data. Cross sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

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